MARSHALL STAR

Serving the Marshall Space Flight Center Community

Jan. 29, 2004

Shuttle main engine reaches propulsion milestone

Stennis, Marshall news release

With a roar and a rush of water vapor, the Space Shuttle's Main Engines (SSME) reached a significant milestone Jan. 22. The system surpassed one million seconds of successful testing and launch firings during a successful flight-acceptance test at NASA's Stennis Space Center in Mississippi.

The engine that was tested is scheduled for use on STS-121, the mission following the Space Shuttle's return to flight. The test ran for eight-and-a-half minutes, the length of time it takes the Space Shuttle to achieve orbit.

"This one millionth-second test is a testimony to the NASA and contractor team that developed, tested and continues to improve the SSME to safely take humans to low Earth orbit," said NASA's Miguel Rodriguez, director of the Propulsion Test

*See **Milestone** on page 2*

Marshall Imaging Services

Alabama to offer aerospace-theme vehicle tag

Alabama space enthusiasts can pre-order a new vehicle license plate that features launch vehicles from the past and present, as well as possible future technologies. The license plates can be reserved by paying a $50 pre-commitment fee for each tag to the vehicle registration office in each county. The Alabama Department of Motor Vehicles requires that 1,000 people pre-commit to purchasing a distinctive license plate before it can officially be issued. For more information, go to www.spacetag.org. The Web site also features an "I Am Interested" form that can be filled out to indicate enthusiasm for the license plate.

NASA awards technology services contract to SAIC

NASA Headquarters release

NASA has awarded the Unified NASA Information Technology Services (UNITeS) contract to Science Applications International Corp. (SAIC) of San Diego.

The total estimated cost-plus-award-fee contract value of the UNITeS core requirements is $823.6 million. The UNITeS Indefinite Delivery/Requirements maximum order limitation is $500,000 per year, or $2.5 million. That brings the total contract value to $826.1 million.

SAIC will perform information technology (IT) management service functions agency-wide with the principal

*See **SAIC** on page 2*

NASA creates ombuds role at HQ and centers

A message from NASA Administrator Sean O'Keefe

I'm pleased to announce the establishment of NASA's Ombuds Program. Acting in complete confidentiality, the ombuds are empowered to listen to and act on NASA family members' concerns related to safety, organizational performance and mission success. The ombuds are designed to serve as a safety valve when employees feel regular channels for raising issues and concerns are not working effectively.

The establishment of NASA's Ombuds Program was recommended by the Agency-wide Action Team chaired by Goddard Space Flight Center Director Al Diaz. Diaz's team was empowered to apply the findings of the Columbia

*See **Ombuds** on page 3*

Too fast, too furious: A galaxy's fatal plunge

Milky Way-like galaxy's demise offering new clues to old mystery

From the Smithsonian Astrophysical Observatory

Trailing 200,000-light-year-long streamers of seething gas, a galaxy that was once like our Milky Way is being shredded as it plunges at 4.5 million miles per hour through the heart of a distant cluster of galaxies.

In this unusually violent collision with ambient cluster gas, the galaxy is stripped

*See **Galaxy** on page 4*

Milestone

Continued from page 1

Directorate at Stennis. "Personally, it is an honor to be part of this great program."

The one million seconds of performance have been accrued through more than 826,000 seconds in the test stand during development, certification and acceptance testing, and almost 174,000 seconds of flight time during 113 Space Shuttle missions.

"The Main Engine that flies today has gone through major upgrades and is safer, stronger and more reliable than the one that flew on STS-1 in 1981. Reaching this milestone is a historic moment for the Space Shuttle Program," said Michael Rudolphi, Space Shuttle Propulsion Manager at the Marshall Center.

Developed in the 1970s, the SSME is the world's most sophisticated reusable rocket engine. Each is 14 feet long, weighs about 7,000 pounds and is seven-and-a-half feet in diameter at the end of its nozzle. It generates almost 400,000 pounds of thrust.

Rigorous testing is used to verify that an engine is ready to fly and is critical to any flight program. In 1998, engineers developed and tested a new main combustion chamber, which improved the SSME's reliability by reducing operating temperature and pressures. A new high-pressure fuel turbo pump was also developed and implemented for its first flight in July 2001 on STS-104.

The Rocketdyne Propulsion and Power division of The Boeing Co. of Canoga Park, Calif., manufactures the SSMEs. Pratt and Whitney, a United Technologies Company, of West Palm Beach, Fla., builds the high-pressure turbo pumps and the Marshall Center manages the SSME project for the Space Shuttle Program.

SAIC

Continued from page 1

place of performance being the Marshall Center. Agency-wide services include the Integrated Financial Management Program (IFMP), wide area network, IT security, and digital television. Marshall Center services include IT systems and services support for programs and projects for which Marshall is responsible.

The UNITeS contract, with a potential period of performance of five years, is the fifth of five work packages awarded from the Space Mission Communications and Data Services (SMCDS) solicitation. The UNITeS contract is a follow-on contract to the present Program Information Systems Mission Services (PrISMS) contract.

Photo by Doug Stoffer, NASA/Marshall Center

Signing the UNITeS contract, from left, are Marshall Center representatives Jim Carter, Steve Beale and Jim Ellis, and SAIC representatives Dan Harris and Lou Rau.

There are 15 major members of the SAIC team, which include IBM of Bethesda, Md.; Morgan Research Corp. of Huntsville (a woman-owned, small disadvantaged business); and Honeywell Technology Solutions Inc. of Columbia, Md.

For more information about the UNITeS program on the Internet, visit: http://www.unites.nasa.gov. For information about SMCDS procurement visit: http://www.hq.nasa.gov/smcds/.

National Youth Science Camp seeking students for summer program

from the Alabama Aerospace Development Center

The National Youth Science Camp is looking for two high school students to represent Alabama during a four-week summer camp this year.

Based in Bartow, W. Va., in the Monongahela National Forest, the program is designed to honor and challenge the most promising high school science students in each state. Scientists from across the nation will present lectures and hands-on seminars. The students also will travel to Washington, D.C., to explore some of the nation's premier scientific, governmental and cultural facilities.

The camp will be June 24-July 19. If selected, students must agree to participate for the entire four-week program. There is no cost to the students. Air travel, meals, lodging and seminars are all paid for by the National Youth Science Foundation.

Alabama Gov. Bob Riley has appointed the Aerospace Development Center in Jacksonville to select the state's two students who will attend the camp.

To be eligible, students must be candidates for high school graduation in the spring and intend on pursuing a profession oriented toward science, mathematics, engineering or medicine. They must demonstrate superior academic proficiency in mathematics and/or science, among other qualifications.

To download an application, go to www.aata.net. Applications are due by Feb. 27.

For more information, call Kevin Connell at (256) 782-5972 or go to www.sciencecamp.org.

Tony Lavoie named director of Flight Projects Directorate at Marshall

by Lori Johnston

Two-decade NASA veteran Tony Lavoie has been appointed director of the Flight Projects Directorate at the Marshall Center where he will lead more than 1,400 civil servant and contract employees.

In his new position, Lavoie will lead the Marshall directorate responsible for payload and science operations for the International Space Station, training crews to operate Space Station science experiments and operating the control center for those experiments. Other Space Station support provided by the directorate includes production of eight EXPRESS racks to house experiments, as well as design and production of the Regenerative Environmental Control and Life Support System, which provides the Station crew with a comfortable environment in which to live and work.

His directorate is responsible for Nodes 2 and 3 - Space Station connectors for international laboratories in space — and three Multi-purpose Logistics Modules, or "moving vans," that will carry laboratory racks via the Space Shuttle to and from the Station. The directorate also is in charge of the NASA Chandra X-ray Observatory Program Office, overseeing operations of the world's most powerful X-ray telescope, as well as pursuing advanced concepts such as space solar power and space elevators.

Emmett Given, Marshall Center

Lavoie

"I am really delighted to be selected to lead the Flight Projects Directorate," Lavoie said. "I am excited about contributing to our new vision for the nation's space program and inspiring a new generation of future explorers, scientists, and engineers."

Lavoie, the deputy director of Flight Projects, will succeed Dr. Jan Davis, who was named director of the Safety and Mission Assurance Office at the Marshall Center in August 2003. Prior to serving as deputy director of the directorate, Lavoie was the program manager of the Chandra X-ray Observatory, launched in July 1999. He previously served as chief engineer for the Tethered Satellite System Project and chief of telescope and science instruments for the Chandra Chief Engineer's office.

Lavoie has a bachelor's degree in aeronautics and astronautics from the Massachusetts Institute of Technology in Cambridge, Mass. He has received the NASA Outstanding Leadership Medal, NASA Exceptional Achievement Medal and numerous Group Achievement awards.

The writer, an employee of ASRI, supports the Media Relations Department

Ombuds

Continued from page 1

Accident Investigation Board to other NASA operations. NASA is releasing the team's report and recommendations this week. It is entitled, "A Renewed Commitment to Excellence."

Jeffrey E. Sutton, assistant administrator for Management Systems, is NASA's Ombuds Program lead. Olga M. Dominguez, deputy assistant administrator for Management Systems will support him. Dominguez is also designated to serve as the ombuds for NASA Headquarters. The designated Center ombuds are:

- Ames Research Center: John W. Boyd, senior advisor for history
- Dryden Flight Research Center: Marta Bohn-Meyer, chief engineer
- Goddard Space Flight Center: Judy Bruner, assistant director for Safety and Security, Office of the Center Director
- Glenn Research Center: Dallas Lauderdale, chief of the Facilities Division, Engineering and Technical Services Directorate
- Headquarters: Olga M. Dominguez, deputy assistant administrator, Office of Management Systems
- Jet Propulsion Laboratory: Lewis Redding, JPL ombuds person
- Johnson Space Center: James (Milt) Heflin Jr., chief, Flight Director Office
- Kennedy Space Center: Humberto T. Garrido, associate director, Safety and Mission Assurance
- Langley Research Center: Grant Watson, head, Safety and Facility Assurance Office
- Marshall Space Flight Center: Axel Roth, associate director
- Stennis Space Center: Douglas McLaughlin, deputy director, Business Management Directorate.

Each ombuds will serve as an honest broker to ensure NASA becomes more accountable and results-oriented. When issues are brought to the ombuds, they may conduct informal inquiries, and will seek to promote a mutually satisfactory resolution of the issue or concern.

Each ombuds will have the ability to raise issues directly with center directors, and at NASA Headquarters with the deputy administrator.

Our ombuds will be empowered to perform their duties independently and in a diligent and timely manner. They will maintain confidentiality at all times, unless the person providing information requests or approves otherwise.

Contact information for ombuds will be distributed as soon as compiled. I encourage members of the NASA family to use the Ombuds Program when other avenues are not working.

I congratulate all those who helped develop this initiative, which will help strengthen NASA's commitment to safety and mission success. When it comes to open and honest communications, we get it!

Galaxy

Continued from page 1

down to its skeletal spiral arms as it is eviscerated of fresh hydrogen for making new stars.

The galaxy's untimely demise is offering new clues to solving the mystery of what happens to spiral galaxies in a violent universe. Views of the early universe show that spiral galaxies were once much more abundant in rich clusters of galaxies. But they seem to have been vanishing over cosmic time. Where have these "missing bodies" gone?

Astronomers are using a wide range of telescopes and analysis techniques to conduct a "CSI" or Crime Scene Investigator-style look at what is happening to this galaxy inside its cluster's rough neighborhood.

Marshall Imaging Services

Marshall team honored for multimedia upgrade work

NASA astronaut Barry "Butch" Wilmore honors members of the NASA NISN Video Teleconferencing Group at Marshall recently for their successful installation of state-of-the-art video, voice and multimedia conference facilities for the Astronaut Office Conference Room at the Johnson Space Center in Houston. The work was performed by Arcata Associates Inc., CSC, and DigitalNet as part of Lockheed Martin's Consolidated Space Operations Contract.

'Galaxy assault'

"It's a clear case of galaxy assault and battery," says William Keel of the University of Alabama. "This is the first time we have a full suite of results from such disparate techniques showing the crime being committed and the modus operandi."

Keel and colleagues laid out the "forensic evidence" of the galaxy's late life, in a series of presentations earlier this month in Atlanta, Ga., at the 203rd meeting of the American Astronomical Society.

Astronomers have assembled the evidence by combining a variety of diagnostic observations from telescopes analyzing the galaxy's appearance in X-ray, optical, and radio light. Parallel observations at different wavelengths trace how stars, gas, and dust are being tossed around and torn from the fragile galaxy, called C153.

Though such "distressed" galaxies have been seen before, this one's demise is unusually swift and violent. The galaxy belongs to a cluster of galaxies that slammed into another cluster about 100 million years ago. This galaxy took the brunt of the beating as it fell along a trajectory straight through the dense core of the colliding cluster.

"This helps explain the weird X-ray and radio emissions we see," Keel said. "The galaxy is a laboratory for studying how gas can be stripped away when it flies through the hot cluster gas, shutting down star birth and transforming the galaxy."

First evidence

The first suggestion of galactic mayhem in this cluster came in 1994, when the Very Large Array radio telescope near Socorro, N.M., detected an unusual number of radio galaxies in the cluster, called Abell 2125. Radio sources trace both star formation and the feeding of central black holes in galaxy clusters. The radio observations also showed that C153 stood out from the other galaxies as an exceptionally powerful radio source.

Keel's team began an extensive program of further observations to uncover details about the galaxies. "This was designed to see what the connection could possibly be between events on the 10-million-light-year scale of the cluster merger and what happens deep inside individual galaxies," Keel said.

X-ray observations from the ROSAT satellite (an acronym for the Roentgen Satellite) demonstrated that the cluster contains vast amounts of 36-million-degree Fahrenheit gas that envelops the galaxies. The gas is concentrated into two main lumps rather than smoothly distributed across the cluster, as is more commonly the case. This bolstered the suspicion that two galaxy clusters are actually colliding.

In the mid-to-late 1990s, astronomers turned the Mayall 4-meter telescope and the WIYN 3.5-meter telescope at the Kitt Peak National Observatory on the cluster to analyze the starlight via spectroscopy. They found many star-forming systems and even active galactic black holes fueled by the collision. The disintegrating galaxy C153 stood out dramatically when the KPNO telescopes were used to photomap the cluster in color.

Astronomers then trained NASA's Hubble Space Telescope onto C153 and resolved a bizarre shape. They found that the galaxy looks unusually clumpy with many young star clusters and chaotic dust features. Besides the disrupted features in the galaxy's disk, Hubble also showed that the light in the tail is mostly attributed to recent star formation, providing a direct link to the stripping of the galaxy as it passed through the cluster core. Gas compressed along the galaxy's leading edge, like snow before a plow, ignited a firestorm of new star birth.

Evidence of recent star formation also comes from the optical spectrum obtained at the 10-meter Gemini North telescope in

*See **Fatal plunge** on page 6*

Marshall's Mick Speer nominated for regional Emmy

First nomination ever received for Marshall Center

by Grant Thompson

Marshall video producer Mick Speer broke new ground for the Center when he was nominated for a regional Emmy award. It was the first Emmy nomination ever received for work at the Marshall Center.

Speer is a writer and producer for NASA Marshall Television. He co-wrote and produced an episode of "NASA CONNECT," an educational series designed to enhance math, science and technology studies for middle school students. His Emmy-nominated episode features NASA employees at the Marshall Center, as well as students from two Huntsville schools. NASA CONNECT is seen by more than 9 million students in approximately 7,600 American schools, airs on PBS affiliates, cable access stations and NASA TV.

The regional Emmy awards were presented Jan. 24 in Nashville, Tenn. Speer was nominated by the Nashville/Midsouth Chapter of the National Association of Television Arts and Sciences. Though he didn't win, Speer said the nomination means that Marshall's multimedia team has been successful in spreading the NASA vision.

"The thought of being recognized for doing a job I love is truly a rewarding feeling," said Speer, a Huntsville native who has been at the Marshall Center since 1999. "To be nominated for a regional Emmy says the multimedia team is doing a great job of spreading NASA's vision of inspiring the next generation of explorers. The entire production has been a great experience."

It was Speer's first regional Emmy nomination. He is employed by ARCATA Associates Inc. in Huntsville, the primary contractor for Marshall TV. Prior to joining the Marshall team, he was awarded 12 local "ADDYs" - an advertising industry award presented by the American Advertising Federation - for television commercials he directed and produced for Vision Design Teleproduction of Pensacola, Fla. While serving in the U.S. Navy, he received a bachelor's degree in humanities from the University of West Florida in Pensacola.

Marshall Imaging Services

Speer

The episode of NASA CONNECT produced by Speer was one of two nominees in the Children's/Educational category for this region. Entitled "Festival of Flight: Opening Space for the Next Generation of Explorers," the episode features Marshall employees and students from Randolph School and Williams Technology Middle School. The 28-minute episode focuses on Sir Isaac Newton's first, second and third laws of gravity and how they relate to NASA's efforts in developing the next generation of space transportation. Like all the CONNECT segments, the episode was accompanied by a Web-based educator's guide describing hands-on and Web activities to supplement its themes.

"NASA CONNECT provides educators with tools that utilize NASA assets that allow teachers and students to share in the adventure of exploration - tools that can be used to teach applications of mathematics and science in a fun and exciting way," said Tammy Rowan, CONNECT Coordinating Producer and education specialist at the Marshall Center.

The CONNECT series is managed for NASA at the Agency's Langley Research Center in Langley, Va.

The writer, employed by ASRI, supports the Media Relations Department.

Photo by Doug Stoffer, NASA/Marshall Center

Discussing NASA's vision

David Martin, left, manager of the Solid Rocket Booster Project in the Space Shuttle Propulsion Office at Marshall, discusses NASA's new vision of exploration with Dr. Alan Chow, TD40, during an Asian Pacific-American luncheon last week.

Spelman president to speak at Black History Month event

Dr. Beverly Tatum, president of Spelman College in Atlanta, will speak at the Marshall Center's Black History Month celebration Feb. 26.

The event will be from 10 a.m.-noon in Morris Auditorium. This year's theme is "A Legacy of Learning: Brown vs. Board of Education 50th Anniversary."

The Oakwood College Aeolians will sing and a "Taste of Soul Food" will be held in conjunction with the event.

All Marshall team members will receive a booklet, "101 Little Known Black History Facts" during the month.

Fatal plunge

Continued from page 4

Hawaii. The spectrum allows the researchers to estimate the time since the most recent burst of star formation.

This conclusion was further bolstered when the Mosaic camera on Kitt Peak's Mayall telescope found a very long tail of extended gas coming off the galaxy. The tail was apparently generated in part by a hurricane of stellar winds boiling off the new star-birth regions and being blown backwards as the galaxy streaks through the surrounding hot gas of the cluster.

Spectroscopic observations with the Gemini telescope allowed astronomers to age-date the starburst. They found that 90 percent of C153's blue light is from a population of stars that are 100 million years old. This age corresponds to the time the galaxy should have gone careening through the densest gas in the cluster core.

Important clue discovered

The Gemini spectroscopic observations show the stars are in a regular pattern of orbital motion around the center, as usual for disk galaxies. However, there are multiple widespread clouds of gas moving independently of the stars.

"This is an important clue that something beyond gravitational forces must be at work, since stars and gas respond the same way to purely gravitational forces," Keel said. "In other words, the galaxy's gas doesn't know what the stars are doing."

NASA's Chandra X-ray Observatory discovered that the cooler clouds detected with optical telescopes and an associated radio feature are embedded in a much larger multimillion-degree trail of gas. Chandra's data indicate that this hot gas was probably enriched in heavy elements by the starburst and driven out of the galaxy by its supersonic motion through the much larger cloud of gas that pervades the cluster.

Collectively, these observations offer evidence that the ram pressure of external gas in the cluster is stripping away the galaxy's own gas. This process has long been hypothesized to account for the forced evolution of cluster galaxies. Its aftermath has been seen in tight clusters that show the aftermath of high-velocity collisions.

The galaxy C153 is destined to lose the last vestiges of its spiral arms and become a bland S0-type galaxy. These types of galaxies are common in the dense galaxy clusters seen today.

Astronomers plan to make new observations with Gemini again in 2004 to study the dynamics of the gas and stars in the tail.

Photo by Emmett Given, NASA/Marshall Center

Marshall Association officers

Recently elected Marshall Association officers are, from left, Robin Henderson, president; Roslin Hicks, treasurer; Pete Rodriguez, vice president of programs; and Beth Cook, vice president of communications. The association provides a forum for the exchange of ideas and information through guest speakers and forums. It also hosts a scholarship program for dependents of Marshall civil service employees. The association, open to civil service employees only, is sponsoring a membership drive. Dues are $25. For more information, call 544-2545.

Retirement events

A retirement reception for Gloria Hullett-Smith will be at 1 p.m. Friday in Room A-164 in Bldg. 4663. The event will be hosted by the Ground Systems Department of the Flight Projects Directorate.

Mitchell wins election to Exchange Council

from the Marshall Exchange

George S. Mitchell, QS40, won election to the Marshall Exchange Council during voting that ended Dec. 12, 2003.

He began serving a two-year term this month.

A total of 340 Marshall civil service employees voted.

The Council sets policy for Wellness Center activities and the Exchange Store in Bldg. 4203.

Mitchell joined current members of the Exchange Council: Axel Roth, Steven Durham, Sharal Huegele, George Myers, Jose Matienzo and May Wales.

David Higginbotham, Marshall Center

Mitchell

Special thank you

Thank you all for that wonderful reception for my retirement. Everything was so much fun, including the video and the work all of you did in preparation, which is much appreciated. The many gifts will be reminders for years to come. All of you on the team have been near and dear to my heart. Keep up the spirit. Best wishes.

—— ***Alex McCool***

Job Announcements

MS04S0060, Deputy Manager, Space Shuttle Propulsion Office. ES-0801-01, 06. This is a career appointment to a position in the NASA Senior Executive Service. Closes Jan. 30. Contact: Diedra Williams at 544-5721.

MS04N0066, AST, Aerospace Flight Systems. GS-0861-11 (promotion potential to GS-13), Flight Projects Directorate, Flight Systems Department, Pressurized Carriers Group. Closes Feb. 3. Contact: Carolyn Lundy at 544-4049.

MS04N0067, AST, Mission Support Requirements and Development. GS-0801-12 (promotion potential to GS-13), Flight Projects Directorate, Payload Operations and Integration Department, Training and Crew Operations Group. Closes Feb. 4. Contact: Carolyn Lundy at 544-4049.

Announcements

U.S. Sen. Richard Shelby to speak at Feb. 17 chamber event

U.S. Sen. Richard Shelby will speak at the 68th annual Membership Meeting of the Chamber of Commerce/ Huntsville-Madison County. The event is from 11:30 a.m.-1 p.m. Feb. 17 at the Von Braun Center. Tickets are $38 and are available from Rosa Kilpatrick in the Government and Community Relations Office. Reservations are due by Feb. 11.

National Engineers Week Award Banquet is Feb. 26

The annual National Engineers Week Award Banquet will be at 6 p.m. Feb. 26 in the North Hall of the Von Braun Center in Huntsville. Tickets are $25 per person for advance reservations and $38 per person for reservations made after Feb. 18. For more information, see "Inside Marshall."

NASA, Marshall Center property disposal sales now Internet-based

Live auctions for NASA and Marshall Center property disposal sales now are conducted by Internet only. Go to http://gsaauctions.gov/gsaauctions/ gsaauctions/ and search by "State of Alabama" to find items for sale located at Marshall and other federal agencies in the state. For more information or assistance, call 544-1774.

Classes open for Marshall team

Two upcoming classes are open to Marshall team members: Making Meetings Work on Feb. 9-13, and Effective Briefings on March 8-12. All classes are from 8:30 a.m.-2:30 p.m. in Bldg. 4200, Room G-13C. Call 544-7552 for more information or see "Inside Marshall."

MARS Ballroom Dance Club Valentine Dinner will be Feb. 6

The MARS Ballroom Dance Club Valentine Dinner will be from 6:30-11 p.m. Feb. 6 in the East Hall of the Von Braun Center. Attire is semi-formal. The "Little Big Band" will provide music. Tickets cost $20 for members and $25 for guests and are on sale until Feb. 3. Call Jerry Maxwell at 544-1954 or Pat Sage at 544-5427 for information.

SHARP mentors needed for 2004 summer session

The Marshall Center's Education Programs Department is seeking volunteers to work with students during the 2004 session of the NASA Summer High School Apprenticeship Program. The program offers high school students an opportunity to participate in an eight-week science and engineering apprenticeship. Marshall volunteers, including researchers, scientists and other engineering professionals, serve as mentors to the students. For more information, call Jennifer Simmons at 961-7544.

New option on Marshall phone '4-HELP' voice menu added

The Marshall Center "4-HELP" telephone voice menu has been changed. In addition to calling for taxi service, Option 3 will connect callers to the Center Operations and Logistics work order team. Option 3 will be announced as "Press 3 for Logistics and Environmental Services." After pressing Option 3, a second set of options will be announced -- "Press 1 for new service orders, press 2 for status of open service orders, press 3 for Marshall taxi." For more information, see "Inside Marshall," call Dawn Stanley at 544-1835, or Ron Burns at 544-4124.

Bldg. 4200 lobby available for exhibits

Organizations wanting to place permanent or temporary graphics, displays and signs in the Bldg. 4200 lobby, or any group wishing to reserve the lobby for an activity, should contact Judy Pettus in the Media Relations Department, CD70, at 544-8911. The department coordinates requests to avoid double-bookings and to ensure public walkways are safe and unobstructed. The department also can advise and assist with floor plan layout to maximize use of the small space available. Please refer to MPG 1380.2, Center Public Exhibits Guidance and Process, for additional details.

Astrionics Lab Instrumentation Division retirees to meet Tuesday

Retirees and friends of the Instrumentation Division of the Astrionics Lab will meet at 11 a.m. Tuesday at the Redstone Golf Course Pro Shop. For more information, call Tom Escue at (256) 232-1549.

Redstone Toastmasters meet every Tuesday

Marshall team members and retirees wanting to improve their speaking skills are invited to the Redstone Toastmasters meeting at 6 p.m. every Tuesday. The meetings are at Casa Mexicana restaurant at 2713 Patton Road in Huntsville.

American Cancer Society 'Relay for Life' set for April 30-May 1

The American Cancer Society's "Relay for Life" fund-raising event will be from 5:30 p.m.-7 a.m. April 30-May 1 at Milton Frank Stadium in Huntsville. The overnight event remembers those who have lost the fight against cancer and honors those who have survived. Teams are assigned from businesses, clubs, families, friends, schools and churches. For more information, call Bennie Jacks at 852-8325.

Army-sponsored National Prayer Breakfast set for Feb. 5

The U.S. Army Aviation and Missile Command is sponsoring a National Prayer Breakfast at 6:30 a.m. Feb. 5 at the Redstone Officers and Civilians Club. Col. Lilton J. Marks will speak and the Women's Brass Ensemble and Bob Jones Concert Chorale will perform. A $3 donation per ticket is requested. Tickets are available until Monday from Rosa Kilpatrick in Marshall's Government and Community Relations Office or by calling 544-0042.

Classified Ads

Miscellaneous

★ Diamondback Centurion road bicycle, 56cm, 14-speed, indexed shifting, aero brakes, $75. 864-8183
★ Jewel-tone paid La-Z-Boy queen sleeper sofa, $300; Navy blue Queen Anne recliner, $150. 519-9326
★ Snow ski equipment: skis, poles, boots (new), carrying bag, $450. 828-6287
★ Century heavy punching bag, 75 lbs., $65. 777-1845
★ Casual and dress maternity clothes, sizes small and medium. 837-3562
★ Home gym, $90. 830-4673
★ Chinese Chippendale dining room set: Table, 4-chairs, 5' glass octagon top/carved base, Cherry, $400. 348-5042
★ Chest-of-drawers, nightstand, painted primary colors, $100; twin bed w/mattress set, maple, $100. 859-4048
★ Weider weight training Universal system, 250 lbs. of weights, all body parts exerciser. 256-468-5391
★ Dagger white water kayak, paddle, spray-skirt, helmet, $650. 880-2990/Mick
★ Do-it-Yourself warehouse, still in box, $150. 830-8299
★ AKC registered Shetland Sheep dogs, 3-males, 6-weeks old, all shots. 931-363-1329
★ Hoyt Striker II compound bow, split limb, new sights, many extras, Commander Cams, $300. 256-348-1990
★ Myles Keller compound bow w/many accessories, $75. 325-6000
★ Computer desk, $60; large office desk, $20; triple dresser, $100; bed w/frame, $35. 256-534-0939
★ Natural gas vent-free heater, 30,000 BTU, zero clearance, photos available, $450. 656-2965
★ Tile flooring scraper, used to remove tile from floors, $25; Schwinn bicycle, $30. 882-2001
★ 1977 Avion Travel trailer, 27', for hunting, camping or lake lot, $4,500. 931-427-2059
★ Pool table, 8', w/1" slate, Kasson, 3-yrs. old, Victorian style, all accessories, $1,990. 880-6563
★ Living room suite: couch, loveseat, chaise, coffee table, end table, entertainment center, $2,000. 256-603-0084
★ New "Prague" ladies leather jacket, black, never worn, $100. 859-2633
★ 1970s model Jeep J10 Gladiator pickup truck bed w/tailgate, $100. 683-9364
★ Mid-Tower ATX computer case, beige, $20; Sony 17" CRT monitor, $50. 765-532-4218
★ NordicTrak Pro ski machine, $75. 506-3236
★ Set of four 16" chrome wheels w/P225-60R16 touring radials, $600. 771-2949
★ Porter-Cable Pancake compressor, 3HP, 135PSI, 4-gallon tank, oil free, $150. 881-7994
★ Mink coat (female minks), autumn haze, stroller length, Ladies size 16, $1,200. 256-883-2924
★ Murray rear engine riding mower w/mulcher kit, 8.5HP, 30" cut, $400. 883-9884
★ Callaway Ladies Big Bertha War Bird, pre-owned, 12, 3, 5 and Divine Nine, $500. 337-5825
★ 1989 Coachman Catalina camper, 34', new flooring, $6,500. 256-582-8429
★ 2001 mobile home, 16'x80', 3BR, 2B, many extras, must be moved, $19,000. 509-9545
★ Macintosh w/monitor, G3, 448MB, 3GBHD, CD-ROM, floppy, zip, USB/FW, Ethernet/56K Modem, $325. 256-830-1911
★ Apollo II Astronaut Buzz Aldrin autographed book, $55. 773-7730
★ Guitar FX-Pandora PX4 w/AC adapter, Amp/speaker modeling, plus all effects, $100. 256-777-8229 lv. msg.
★ Male Cockatiel, 4 yr. old, w/cage, $50. 694-2030
★ Palm V accessories kit, modem, charger, Wireless Web, GSM upgrade, carrying case, $20. 772-8489
★ Road bicycle, 56cm, Diamondback Centurion, 7-speed indexed, aero brakes, 700c wheels, $50. 864-8183
★ Queen semi-waveless waterbed, mirrored headboard, side lamps, new deluxe rails, 12-drawer storage underneath, $200. 880-3737
★ Lab mix puppies w/shots, male & female, cream color, $50. 682-7622
★ Space Shuttle Challenger children's play tent, unused in original box from 1985. $50. 256-306-0700 Decatur

Vehicles

★ 1993 Explorer, plum, all-power, new air/blower, brakes, new tires, 151K miles, $3,100. 256-772-0430
★ 2000 Mazda 626, 4-door, 41K miles, silver w/gray interior, ps/pb/pb/pl, am/fm/CD cassette, a/c, $9,950. 256-230-0806
★ 1991 Chevy p/u 1500, 4.3L/V6, 5-speed/manual, red, tilt-wheel, ps/pb, a/c, cloth interior, 120K miles. 489-7337
★ 1994 Nissan Sentra, needs starter, $1,000. 830-8299
★ 1996 Saturn SL1, 4-door, sunroof, 5-speed, 79K miles, $3,500. 325-6000
★ 1999 Ford Ranger XLT, 4.0/6-cyl., auto, tilt, cruise, a/c, liner, 115K miles, $4,950 firm. 256-753-2278
★ 2000 Chevy Camaro, V6, auto, pw/pdl/ps, T-tops, 37K miles, silver, $12,900. 256-232-4379
★ 1995 Ford Explorer, Eddie Bauer, leather, abs, alloy, 125K miles, CD, privacy glass, $4,985. 880-6563
★ 1991 Jeep Cherokee, Briarwood, 4x4, 4-door, blue w/tan leather, many extras, 146K miles, 3,500. 325-3928
★ 1992 Firebird 305, automatic, green, T-tops, factory CD, 183K miles, one-owner, well maintained, $4,000. 931-433-8542
★ 1996 Dodge Intrepid ES, approx. 92K miles, $4,500.
★ 1991 Explorer XLT, 4-door, leather, sunroof, 64K miles, $3,000 in new parts, $4,000. 880-6498
★ 1999 Cadillac Deville, shale, 71K miles, am/fm cassette, fw/tractor, abs, cruise, anti-theft, leather. 534-9631
★ 1968 Mustang, 6-cyl., primed and ready for paint, $2,900. 922-9294
★ 1992 GMC conversion van, 165K miles. 931-363-7764
★ 1997 Dodge Ram Laramie SLT pickup, 5.9L Magnum V8, at/pw/pl, tilt/cruise, 83K miles, $8,900. 880-0881
★ 1997 Chrysler Town & Country van, one-owner, 95K miles, silver/beige, $6,800. 881-7000

Wanted

★ To talk to someone who subscribes to Louis Rukeyer's Newsletter. 881-6040
★ Boys ski bibs, size 5/6, 6x, or child's small. 895-0148
★ Chain link gate, 57" wide, reasonable. 461-8369

Free

★ Puppy, has all shots. 883-2125
★ Generic black inkjet cartridge for Epson Stylus C80. 461-8721

MARSHALL STAR
Vol. 44/No. 18

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
http://www1.msfc.nasa.gov

The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Monday noon to the Marshall Internal Relations and Communications Department (CD40), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations and Communications — Steven Durham
Editor — Jonathan Baggs

U.S. Government Printing Office 2004-633-065-60088

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